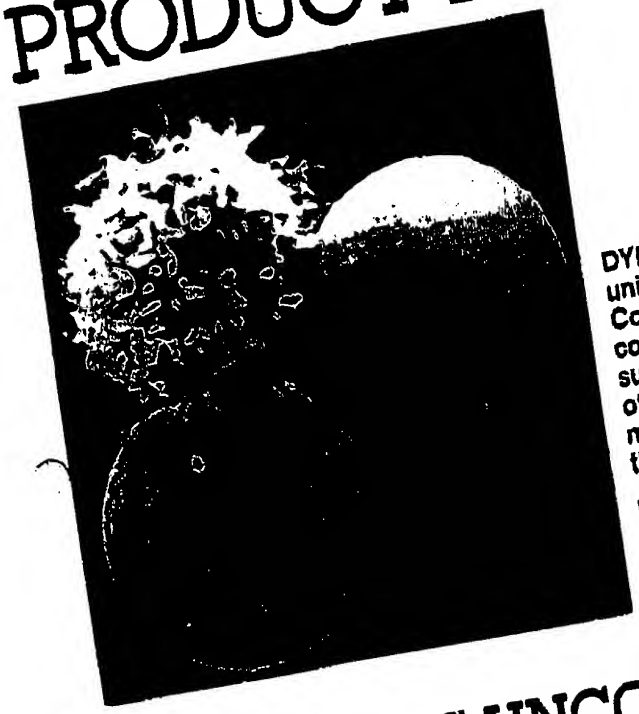
Encl. 1

DYNAL

PRODUCT LIST 1989

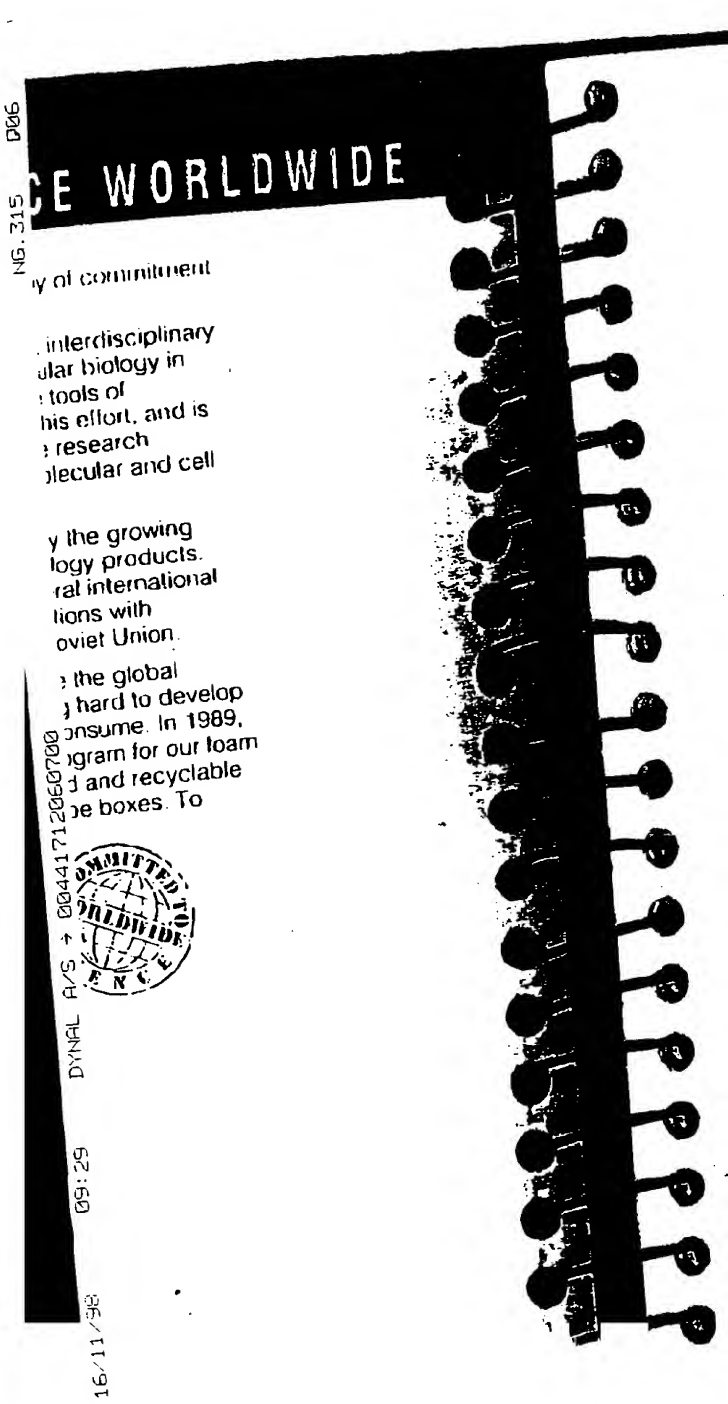


DYNABEADS™ products are based on extremely uniform, superparamagnetic polystyrene beads. Consisting of a maghemite (Fe_2O_3) containing core covered with a polymer, they have a smooth surface that is easily coated with antibodies or other selecting molecules. Combined with a magnet, Dynabeads make a unique tool in positive or negative separationes.

Fields of applications include:
Immunology, Tissue Typing, Cancer research, Transplantation medicine, Microbiology, Virology, DNA Technology and Clinical chemistry.

DYNABEADS UNCOATED

	Prod.no.	Volum
A. Immunomagnetic beads *for cell separations*. Uniform, superparamagnetic polystyrene beads with diameter 4.5 micron (c.v.< 5%). $4x10^8$ DYNABEADS per ml (30 mg per ml) in aquous solution.		
DYNABEADS M-450 Uncoated For *physical* adsorption of primary antibodies of the IgM class, or for customer's own secondary antibodies. Primary monoclonal antibodies of the IgG class should be bound to Dynabeads M-450 via a secondary antibody for optimal function.	140.01 140.02	2 1
DYNABEADS M-450 Tosylactivated For convenient *chemical* coupling of proteins or secondary antibodies of customers own choice.	140.03 140.04	10 m
B. Immunomagnetic beads for use *in microbiology and immunoassays*. Uniform superparamagnetic polystyrene beads with a polymer surface having only primary OH groups and with a diameter of 2.8 micron (c.v.< 3%). $6-7x10^8$ DYNABEADS per ml (10 mg per ml) in aquous solution.		
NEW **DYNABEADS M-280 Tosylactivated** For convenient chemical coupling of proteins, peptides or secondary antibodies of customers own choice. Dynabeads M-280 are activated by use of p-toluene suphonyl chloride and ready for coating through a simple incubation.	142.03 142.04	



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Second Edition

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Promega

800-356-9526

Promega Corporation
2800 Woods Hollow Road
Madison, WI 53711-5399 USA
Toll Free 800-356-9526
Telephone 608-274-4330
FAX 608-273-6967
Telex 62067092

Nucleic Acid Detection, Purification and Labeling

Encl. 3

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I. Magnetic Particle Separation of Macromolecules

The attachment of nucleic acids to solid supports such as nitrocellulose (1,2) and cellulose (3) has found many applications in the field of molecular biology, particularly for affinity purification of proteins and nucleic acids. One common application of immobilized nucleic acids is oligo(dT) cellulose purification of messenger RNA (mRNA) by hybridization to the 3' polyadenine tail (4). Recent years, however, have witnessed the emergence of paramagnetic particles as the solid support of choice for many affinity purification protocols. Paramagnetic particles incorporate iron oxide into submicron sized particles which have no magnetic field but form a magnetic dipole when exposed to a magnetic field. The use of paramagnetic particles eliminates the need for traditional column chromatography, centrifugation, or any other special equipment. These particles have been successfully used in the development of immunoassays (5), probe diagnostic assays (6), and for measuring RNA in cell lysates using dA-tailed capture probes (7).

Promega has extended the use of paramagnetic particles to the affinity purification of polyadenylated mRNA with the PolyATtract™ system and to cDNA synthesis and cloning with the Capture Clone™ system. Unlike procedures which use direct coupling of probes to paramagnetic particles (6,7), these systems use a biotinylated oligonucleotide probe to hybridize in solution to the targeted nucleic acid. The hybrids are then captured using covalently coupled streptavidin paramagnetic particles. This approach combines the speed and efficiency of solution hybridization with the convenience and speed (<1 minute) of magnetic separation.

Promega utilizes its own highly purified streptavidin for the production of the particles. These streptavidin paramagnetic particles (SA-PMPs) exhibit a high binding capacity for biotinylated oligonucleotides and low non-specific binding of nucleic acids. The binding capacity of the particles varies with the specific oligonucleotide probe used. For biotinylated oligo(dT), the calculated binding capacity is roughly 1nmole probe captured/mg SA-PMPs.

II. Rapid Isolation of Total RNA

A. Introduction

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